Modeling multiple-country repeated cross-sections. A societal growth curve model for studying the effect of the economic crisis on perceived ethnic threat

Meuleman, Bart ; Davidov, Eldad ; Billiet, Jaak

Abstract: While multiple-country repeated cross-sectional datasets are increasingly available, few cross-national studies fully exploit the richness of such data. This paper contributes to the practical knowledge on statistical analysis of cross-national time series data. For that purpose, we present a novel application of a societal growth curve model (Fairbrother, 2014) analyzing the pressing question whether the economic crisis of the past years has stirred up immigration-related threat perceptions among European citizens. Concretely, we analyze six rounds of European Social Survey data (2002-2012) to investigate whether indicators of economic downturn are systematically related to increased levels of economic and cultural threat. The societal growth curve modeling approach makes it possible to set longitudinal effects apart from cross-sectional differences and thus overcomes the weaknesses of analyses relying on single-shot cross-sectional data. Our results provide evidence that growing unemployment as well as decreasing rates of economic growth instigate feelings of economic threat. Rather than affecting citizens' opinion uniformly, the economic crisis is found to have the strongest impact on economic threat among low educated people. While this study provides evidence that economic shocks affect concerns that immigration is bad for the economy, feelings of cultural threat are not affected by economic crises.

DOI: https://doi.org/10.12758/mda.2017.10

Originally published at:
Meuleman, Bart; Davidov, Eldad; Billiet, Jaak (2018). Modeling multiple-country repeated cross-sections. A societal growth curve model for studying the effect of the economic crisis on perceived ethnic threat. MDA - Methoden, Daten, Analysen, 12(2):185-210.
DOI: https://doi.org/10.12758/mda.2017.10

Modeling multiple-country repeated cross-sections: A societal growth curve model for studying the effect of the economic crisis on perceived ethnic threat

Bart Meuleman, University of Leuven

Eldad Davidov, University of Cologne, Faculty of Management, Economics and Social Sciences, The Institute of Sociology and Social Psychology; and University of Zurich, Department of Sociology, and URPP Social Networks

Jaak Billiet, University of Leuven

Acknowledgments: The second author would like to thank the University of Zurich Research Priority Program 'Social Networks' for their support during work on this study. The authors would like to thank Lisa Trierweiler for the English proof of the manuscript.

Modeling multiple-country repeated cross-sections: A societal growth curve model for studying the effect of the economic crisis on perceived ethnic threat

Abstract

While multiple-country repeated cross-sectional datasets are increasingly available, few cross-national studies fully exploit the richness of such dataset. This paper contributes to the practical knowledge on statistical analysis of cross-national time series data. For that purpose, we present a novel application of a societal growth curve model (Fairbrother, 2014) analyzing the pressing question whether the economic crisis of the past years has stirred up immigration-related threat perceptions among European citizens. Concretely, we analyze six rounds of European Social Survey data (2002-2012) to investigate whether indicators of economic downturn are systematically related to increased levels of economic and cultural threat. The societal growth curve modeling approach makes it possible to set longitudinal effects *apart* from cross-sectional differences thus overcoming the weaknesses of analyses relying on single-shot cross-sectional data. Our results provide evidence that *growing* unemployment as well as *decreasing* rates of economic growth instigate feelings of economic threat. Rather than affecting citizens' opinion uniformly, the economic crisis is found to have the strongest impact on economic threat among low educated people. While this study provides evidence that economic shocks affect concerns that immigration is bad for the economy, feelings of cultural threat are not affected by the economic shock.

Key words: group conflict theory; economic vs. cultural threat; societal growth curves; European Social Survey

Modeling multiple-country repeated cross-sections: A societal growth curve model for studying the effect of the economic crisis on perceived ethnic threat

1. Introduction

Over the course of the last decades, cross-national data collections—such as the *European Social Survey* (ESS), the *European Values Study* (EVS), or the *International Social Survey Programme* (ISSP)—have accumulated trend data rendering it possible to monitor change in citizens' values, attitudes and behavior. These data can be characterized as cross-national repeated cross-sections: Multiple countries are observed across a time range, but at each point of observation a different cross-section of the national population is surveyed. The potential contribution of this design to social scientific insights is very large. The longitudinal aspect can help to partially overcome the well-known but crucial causality problem that single-shot cross-national studies suffer from. Such cross-sectional studies can demonstrate that differences in a context variable tend to coincide with particular patterns in public opinion at a given time point. Such correlational patterns only provide a very shaky empirical foundation to make claims about causality. Cross-national trend data can provide additional insights in the temporal order of the relationship, which is a necessary (yet insufficient) condition for causality. However, according to the seminal work of Campbell and Stanley (1966; see also Shadish, Cook & Campbell 2001), a multi-location time series design can provide interesting insights, especially when experimental manipulation is not feasible.

While multiple-country repeated cross-sections are increasingly available, knowledge on statistical tools to optimally analyze such data is limited. As a result, many current cross-national studies do not fully exploit the richness of the available data. This paper demonstrates the practical implementation of a statistical model to analyze multi-country repeated cross-sectional datasets. The second purpose of this paper is to utilize the model to

analyze the effect of the economic crisis on threat due to immigration among Europeans. We do this by providing a novel application of the societal growth curve model introduced by Fairbrother (2014). This model uses multilevel techniques to estimate how a particular aggregated individual characteristic –such as ethnic threat- develops over time on the country level, and to assess whether contextual variables can explain the observed over-time developments. We apply this model to test whether the 2008 economic crisis has affected perceptions of ethnic threat among European citizens. Numerous single-shot cross-national studies have presented empirical evidence that economic conditions are related to prejudice, perceived threat, and anti-immigrant sentiments (for reviews, see Ceobanu & Escandell, 2010; Hainmueller & Hopkins, 2014). Studying the development of exclusionary attitudes over time in multiple countries, however, provides a more stringent test of the causal impact of economic conditions (for examples, see Meuleman, Davidov & Billiet, 2009; Semyonov, Raijman & Gorodzeisky, 2006). The societal growth curve approach allows disentangling longitudinal and cross-sectional effects of changes in the economic context.

Concretely, we employ the societal growth curve model in the current study to address the following research questions: (1) In what way has the prevalence of perceived immigrant threat in European societies evolved in the period before and after the outbreak of the economic crisis in 2008? (2) Are the observed developments in perceived threat driven by *changes* in economic conditions due to the crisis? (3) Does the crisis affect threat perceptions across the whole population, or are crisis effects instead contingent on social positions in the form of education level? To answer these questions, we analyze data from the European Social Survey (ESS) across the years 2002-2012, providing information about immigration-related threat perceptions in 28 countries before, during, and after the outbreak of the economic crisis.

The paper starts by providing the theoretical background and formulating our research hypotheses. Second, we explain how societal growth curve models can be used to test our hypotheses using multiple-country repeated cross-sections. Subsequently, we present the data and measures we use. The paper concludes with a discussion on the results of the analysis and the usefulness of the societal growth curve model.

2. Theoretical background: A dynamic formulation of group conflict theory

Group Conflict Theory (GCT) offers a framework to understand possible effects of the economic crisis on prejudice, threat perceptions and anti-immigration sentiments. The central proposition of GCT is that negative attitudes toward outgroups—such as immigrants and ethnic minorities—develop as a defensive reaction of the majority group to the perception that prerogatives of the own group are threatened (Blumer, 1958; Gorodzeisky & Semyonov, 2016; Olzak, 1992; Quillian, 1995). Not only economic goods (such as well-paid jobs, affordable housing, or the scarce resources of the welfare state), but also cultural goods (such as cultural traditions or society-specific norms and values) can become the subject of intergroup competition (Stephan et al., 1998). The distinction between the different sources of threat perceptions is of crucial importance, as economic and cultural threat perceptions can differ in their antecedents (such as social class basis) as well as in their consequences (e.g., prejudice or voting behavior) (Harell et al., 2012; Lucassen & Lubbers, 2012; Sniderman, Hagendoorn & Prior, 2004).

According to GCT, majority-members' threat perceptions are influenced by contextual factors, such as economic conditions or immigrant group size (Blalock, 1967). In times of poor economic conditions, the material goods that are the object of intergroup competition become scarcer, thereby leading to an intensification of (mainly economic) threat perceptions. Furthermore, a more sizeable immigrant group implies that the native population is

confronted with a larger number of competitors, again causing intergroup competition to become stronger. Several empirical studies have confirmed that anti-immigration attitudes are more widespread in adverse economic contexts (Quillian, 1995; Schneider, 2008; Semyonov et al., 2006) with high levels of ethnic diversity (Lahav, 2004; Quillian, 1995; Scheepers, Gijsberts & Coenders, 2002; Schneider, 2008), although these effects could not always be replicated (Sides & Citrin, 2007). A serious limitation that can be often observed in this body of research is its reliance on cross-sectional data sources (Hainmueller & Hopkins, 2014). However, the finding that international differences in economic performance coincide with variations in public opinion at a given time point hardly proves that the economic crisis may be a cause of threat perceptions. After all, numerous other variables—such as the immigration history of a country, the broader political climate, the media, or the implemented migration and integration policies—might intervene in the relationship between economy and public opinion (Schlueter, Meuleman & Davidov, 2013).

A dynamic reformulation of GCT (Coenders & Scheepers, 1998; Meuleman et al., 2009) instead proposes to study how attitude *changes* are driven by *changes* in the actual level of competition. The theoretical rationale for this focus on changes is that sudden shifts in economic prosperity or immigrant presence could have more substantial effects on public opinion than high but stable levels of actual competition (Hopkins, 2010). Sudden changes affect labor, housing, and other markets more strongly than slow-paced evolutions (Olzak, 1992) and usually receive wide media coverage (Schlueter & Davidov, 2013; McLaren, Boomgaarden & Vliegenthart, 2017). A crucial methodological advantage of focusing on longitudinal changes is that it offers a more stringent test of the causal relationships articulated in the GCT.

The—relatively few—empirical studies using a dynamic approach often support the propositions derived from GCT. Economic downturns were found to instigate threat

perceptions and anti-immigrant attitudes in the United States (Quillian, 1996), Canada (Wilkes & Corrigall-Brown, 2011; Wilkes, Guppy & Farris, 2008), Germany (Coenders & Scheepers, 2008), and the Netherlands (Coenders & Scheepers, 1998; Coenders et al., 2008). Also, studies combining a cross-national and longitudinal perspective confirm the role of economic conditions (Semyonov et al., 2006; Meuleman et al., 2009; Kuntz et al., 2017). Pichler (2010) furthermore demonstrates that economic conditions can also alter the mechanisms through which threat perceptions are formed. During periods of unfavorable economic conditions economic concerns come to the fore in the formation of threat perceptions, while cultural concerns are suppressed.

A limitation of existing studies is that they span periods with only relatively small economic fluctuations. Yet, the recent economic turmoil might be conceived as a new critical juncture that sets in motion different mechanisms, compared to those active during more modest economic fluctuations (Billiet, Meuleman & De Witte, 2014; Semyonov et al., 2006). Little is known about the impact of a serious economic crisis. This study therefore tests whether the economic downturn Europe has been experiencing in the aftermath of the 2008 financial crisis has affected economic and cultural threat perceptions among majority-group citizens. Based on GCT, we expect that *threat perceptions have increased in Europe since the beginning of the crisis in 2008* (Hypothesis 1) and that *changes in threat perceptions in European countries are related to country-level changes in economic conditions* (Hypothesis 2). Furthermore, building on Pichler's (2010) argument on the shifting foundations of threat perceptions, we expect that *indicators of the economic context will have a stronger impact on economic than on cultural threat perceptions* (Hypothesis 3). Finally, the individual-level component of GCT suggests that the threat-inducing effect of the crisis might be stronger among individuals in social-structural vulnerable positions in the form of low education levels, whereas there is no such effect among those who are highly educated (as a proxy for

being well off). This would, in other words, imply that *the effect of the crisis on threat perceptions interacts (negatively) with education* (Hypothesis 4).

3. Modeling multiple-country repeated cross-sections: Societal growth curves

The aforementioned hypotheses can be tested by means of multiple-country repeated cross-sectional data, that is, data consisting of several countries that are observed at different time points, by surveying a large number of individuals. Such data contain a three-level hierarchical structure, with countries at the highest level, country-years at the middle level, and individuals at the lowest level. This nested structure can be taken into account by fitting a societal growth curve model (Fairbrother, 2014) that estimates how an individual characteristic evolves over time within countries - see equation (1).

$$Y_{itj} = \beta_0 + \beta_1 Time_{tj} + \nu_{1j} Time_{tj} + \nu_{0j} + u_{0tj} + e_{itj} \quad (1)$$

$$with\ e_{itj} \sim N(0, \sigma_e^2)$$

$$u_{0tj} \sim N(0, \sigma_u^2)$$

$$\nu_{0j} \sim N(0, \sigma_{\nu 0}^2)$$

$$\nu_{1j} \sim N(0, \sigma_{\nu 1}^2)$$

Y_{itj} represents a measured characteristic (e.g. perceived threat) for an individual *i*, surveyed at time point *t* in country *j*. β_0 is the grand intercept in this model, referring to the predicted level of *Y* at the beginning of the time series averaged across all countries. By including the variable 'time' as a fixed effect at the second level (country-years), the overall evolution of the dependent variable *Y* is modeled, which is an essential feature of the growth curve approach. In equation (1), the time effect is linear (with an effect parameter β_1), but the model can be extended in a straightforward way to include more complex functional forms of growth. Random effects for the intercept (ν_{0j}) and the slope (ν_{1j}) of the growth curve are included to accommodate the country specificity of threat developments over time, that is,

how the growth curve in a specific country deviates from the average developmental pattern. The model also contains random components at the middle (u_{otj}) and lowest (e_{itj}) levels. u_{otj} reflects how country-years deviate from the country-specific growth curve. e_{itj} captures the individual-level residuals. This approach shows similarity to conventional multilevel growth curve models for panel data (e.g. Andreß, Golsch & Schmidt, 2013). The main difference is that the occurrence of repeated measurements is not at the level of individuals, but rather at the level of the countries. As a consequence, the intercepts of the growth curve are situated at the level of the country-years (level 2), and the intercept variation is captured by its variance component v_{0j}. The slope of the growth curve is estimated by the linear effect of the time variable, the slope variation is absorbed in its variance component v_{1j}. As such, the societal growth curve model is essentially a classical two-level growth curve model for countries, with an additional layer of individuals underneath.

One could add to this baseline model individual-level as well as contextual predictors. Of crucial importance is that the societal growth curve approach makes it possible to partition the impact of contextual variables into a cross-sectional and a longitudinal component by simultaneously including a time-invariant (i.e., the average over the complete time series) and a time-varying component (the year-specific deviation of that average) of the contextual variables into the models (Fairbrother, 2014). This decomposition into cross-sectional and longitudinal associations takes place by simultaneously including time-invariant and time-varying components of the contextual variables in the models (Fairbrother, 2014; this decomposition is similar to disentangling between- and within-cluster covariate effects in clustered data—see Neuhaus & Kalbfleisch, 1998).

Take a contextual variable Z_{tj} that varies across countries as well as time points (e.g., the unemployment rate). Time-invariant component $Z_{\bullet j}$ equals the value of this contextual variable for a particular country averaged over the whole observed time series (e.g., the

average unemployment rate of a specific country between 2001 and 2012). The parameter for this time-invariant component captures the cross-sectional relationship between context and threat levels, irrespective of changes over time. The time-varying component is calculated as the deviation of the observed value at a specific time point from the country average over the whole time series (Z_{tj} - $Z_{\bullet j}$). The parameter for the time-varying component describes longitudinal relationships, that is, how variations in perceived threat over time within countries (from their longitudinal average) are associated with changes in a contextual variable. Because $Z_{\bullet j}$ and (Z_{tj} - $Z_{\bullet j}$) are included simultaneously in the model, the parameter for the time-varying component reflects the pure longitudinal effect, controlling for its average over the whole time series.

Finally, cross-level interactions between the longitudinal variations of contextual variables and individual characteristics can be included to investigate whether the growth curve components (intercept and slope) vary across different categories of individuals.

4. Materials and methods

Dataset: European Social Survey, 2002-2012

We analyze data from a time series of six rounds of the European Social Survey (ESS), spanning the period before and after the crisis (2002-2012). This multi-location time-series design is one of the strongest alternatives when experimental manipulation is not feasible, under the condition that the event that should bring about change in the time series (the quasi treatment) is well specified a priori (which is the case here) (Campbell & Stanley, 1966: 38; see also Shadish, Cook & Campbell, 2001). The logic behind it is that it is unlikely that particular quasi-experimental treatments are followed by an outcome change in multiple locations, if the effect is not causal.

Since the focus is on change, we include only countries that participated in at least two ESS rounds. Our dataset comprises 28 countries with a total of 137 country-year combinations. In all countries, strict probability samples of the resident population aged 15 years and older were drawn. Because we are interested in the attitude patterns among members of the majority population, respondents who were born outside the country, who have a foreign nationality, or who consider themselves as a member of an ethnic minority group are removed from the sample (see also Sarrasin, Green, Fasel & Davidov, 2015). The total sample size equals 228,331 individuals (for sample sizes per country and year and country abbreviations, see Appendix 1).

Measurements

Dependent variables – The ESS core module contains two items that were designed to measure economic and cultural threat perceptions.[i] Respondents are invited to position themselves on an 11-point scale of which the endpoints refer to perceiving immigration as a disadvantage or as an advantage for the economy ('Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries?') or the cultural life ('Would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?'). The scales are reversed, so that 0 indicates low and 10 high threat. While these items have been used as indicators of a single concept of general group threat in previous research (Sides & Citrin, 2007), we analyze them separately to render the difference between economic and cultural sources of threat visible (for a similar approach, see Pichler, 2010).[ii] This approach is justified by the fact that both items contain—especially at the individual and country-year level—considerable unique information. The correlation between economic and cultural threat equals 0.60 at the individual level, 0.71 at the country-year level, and 0.83 at the country level, implying that the two items share 36.0,

50.1, and 69.3 percent of their variance at these respective levels. These unique components allow sufficient room for differential effects of individual as well as contextual predictors (see below).

Contextual predictor variables – All contextual variables were retrieved from the Eurostat website (http://ec.europa.eu/eurostat). The economic context is captured by means of the real GDP growth rate (Eurostat indicator *nama_gdp_k*) and the harmonized unemployment rate (Eurostat indicator *une_rt_a*). Changes in immigrant group size are measured by the inflow of foreign immigrants (Eurostat indicator *migr_imm1ctz*) per capita. We include the time-invariant as well as the time-varying components of these contextual variables. Concretely, we average contextual information over two years to indicate the time-varying component referring to a specific time point (e.g., the average unemployment rate of 2001 and 2002 is taken to predict threat perceptions in the 2002 survey). This choice reflects that the impact of economic contexts may be lagged. The time-invariant component is the average across the whole time series (2002-2012).

Individual-level predictor variables – In order to control for compositional differences – that is, the fact that European populations have a different composition in terms of several individual characteristics - we include a series of variables capturing social-structural positions and cultural dispositions that were shown to be relevant in previous research (e.g. Coenders & Scheepers, 1998; Meuleman, Davidov & Billiet 2009; Meuleman, Abts, Slootmaeckers & Meeusen, 2017; Semyonov, Raijman & Gorodzeisky 2006). The social-structural variables are *gender*, *age*, number of years of *education* completed, *degree of urbanization* (from 1 = countryside to 5 = big city), *employment status* (distinguishing self-employed, higher service class, white collar, blue collar, unemployed, retired, in education, doing housework, disabled, and other) and *subjective income*. The latter variable is used as a proxy for the household income and is operationalized by the individual assessment of

whether one finds it difficult or comfortable to live on the present income (1 = very difficult; 2 = difficult; 3 = coping; 4 = living comfortably). Based on previous literature, we expect people in socially vulnerable positions, that is with lower education and lower subjective income, the unemployed and the low-skilled workers to feel more threatened by immigrants. Furthermore, older individuals are expected to be more negative toward immigrants (e.g., Hercowitz-Amir, Raijman & Davidov 2017; Meuleman, Davidov & Billiet, 2009; Semyonov, Raijman & Gorodzeisky, 2006).

Religious involvement is the mean of items measuring subjective religiosity (ESS item *rlgdgr*), attendance of religious services (*rlgatnd*) and frequency of praying (*pray*). *Political orientation* is measured by self-placement on a left (0) to right (10) scale. This scale was categorized into three groups, namely, left (scores 0-4), center (5), and right (6-10). To handle the considerable nonresponse of this item, we added a fourth category for the missing values. Secular persons as well as left-leaning individuals are assumed to express lower levels of perceived ethnic threat (see, e.g., Hercowitz-Amir et al., 2017).

Descriptive statistics for the variables are displayed in Appendix 2.

Statistical modeling

The random effect models are estimated by means of the MIXED procedure of SAS 9.3, using a restricted maximum likelihood estimation method. To obtain standard errors that are robust against deviations of the distributional assumptions of the random effects (such as non-normality), we furthermore used the "sandwich estimator" (Verbeke & Molenberghs, 2000: 87ff). All analyses are weighted to correct for cross-national differences in sampling design (*dweight*). All continuous individual-level predictor variables were centered around their grand mean prior to the analysis. Apart from political orientation –where a separate category for the missing values is created, we applied listwise deletion to deal with the item

non-response. The amount of missing values in the data was quite limited and lower than 5% on average ranging between 4.6% for the variable economic threat and 0.1% for gender. Therefore, we do not expect that using listwise deletion distorts our conclusions (see Schafer & Graham, 2002).

5. Results

Trends in perceived threat, 2002-2012

Before presenting the societal growth curves, we explore the development in threat perceptions over the period 2002-2012. Considerable cross-country differences can be observed in the level of perceived *economic* threat (see Figure 1), ranging from as low as 3.36 (Luxemburg, 2002) to as high as 7.22 (Cyprus, 2012) (on a scale from 0 to 10). These differences follow regional patterns, with the lowest levels of economic threat in Northern Europe and the highest scores in Eastern and Southern Europe. Longitudinal developments within countries appear to be smaller than between-country differences. The most notable change is observed in Ireland, where economic threat shifts from 4.04 (2006) to 5.28 (2008) to 5.85 (2010). Progression of economic threat is patterned along regional lines as well. In the Nordic countries, which already displayed comparatively low threat in 2002, economic threat perceptions tend to stabilize or even diminish. In Southern Europe, by way of contrast, a clear upward trend is notable. It is revealing to observe that between 2008 (the outbreak of the financial crisis) and 2010 (when its impact on the economy was becoming clear), economic threat perceptions became more prevalent in 20 countries, while they became weaker in 3 countries only (see also Kuntz et al., 2017).

Regarding cultural threat (Figure 2), the specific position of Scandinavian countries becomes even more distinct. Northern Europeans perceive substantially less cultural threat compared to citizens in Western, Eastern, and Southern Europe. Importantly, longitudinal

changes in cultural threat are less outspoken than in the case of economic threat. At least during our time window of observation, cultural threat perceptions seem to be a more stable phenomenon, while economic threat perceptions tend to fluctuate substantially.

(Figures 1 & 2 about here)

Societal growth curves: The longitudinal impact of economic conditions

To examine the effects of economic conditions on threat perceptions, we estimate a series of societal growth curve models for economic and cultural threat (see Tables 1 and 2). An empty three-level model (not shown) indicates that economic and cultural threat perceptions vary significantly across individuals, country time points combinations as well as countries. The lion's share of the total variation can be attributed to the individual level. Variations of threat between countries (7.5% of the total variance for economic threat vs. 12.9% for cultural threat) are considerably larger than longitudinal variations of threat within countries. Notably, the longitudinal variation of economic threat (2.0%) is more than double than that of cultural threat (0.9%).

Models 1E (Table 1) and 1C (Table 2) estimate growth curves by including time as a predictor. A linear time trend combined with a dummy for 2010 (picking up an additional change in 2010 over and above the linear process) provides the most appropriate description of the data. For both forms of threat, the linear time effect is insignificant, but does have significant random slope variation. This means that, *on average* across all countries, threat perceptions remain stable between 2002 and 2012; the linear trend does vary cross-nationally, however, with increases in some countries and decreases in others. One particular ripple disturbs the linear development of threat perceptions. The dummy for 2010 has a significant and positive effect. In 2010 (i.e., following the outbreak of the financial crisis), economic and cultural threat perceptions were respectively 0.116 and 0.120 units higher than what is

expected based on the general time trend. This pattern confirms that immigrant-related threat perceptions have increased across Europe after the 2008 crisis (supporting Hypothesis 1), although the magnitude of the increase should not be overrated. Furthermore, the 2010 increase in threat perceptions was instantaneous and had receded by 2012.

Indicators of the economic context as well as individual characteristics are added in Models 2E and 2C. Economic and cultural threat perceptions are—to a large extent but not completely—driven by the same set of individual predictors. As expected by theories of ethnic competition, threat perceptions are most outspoken among individuals with a lower socioeconomic status. Fewer years of education and a lower (subjective) income seem conducive towards increased threat perceptions. Concerning employment status, the highest levels of threat perceptions are observed among blue collar workers, followed by persons who are unemployed, retired, disabled, or homemakers. Members of the higher service class and those in education feel least threatened. Furthermore, also persons living in a rural environment express higher levels of economic and cultural threat. Consistent with previsous research (e.g. Semyonov, Raijman & Gorodzeisky, 2006), political orientation is among the strongest predictors of perceived threat: left-leaning individuals feel culturally as well as economically less threatened. Apart from these similarities, three individual variables have a differential impact. Males feel economically less threatened than females, while no gender gap is present for cultural threat. Furthermore, the highest levels of cultural threat are found among respondents between the ages of 55 and 74 years, while this age group does not deviate from the reference category (aged 45-54 years) on economic threat. Finally, religiosity has a small tempering effect on economic threat but shows no significant relationship with cultural threat.

To find out whether *changes* in the economic context affect threat perceptions, Models 2E and 2C include the country time-invariant (cross-sectional) and the time-varying

(longitudinal) components of two economic variables, namely, the unemployment rate and the real GDP growth. The longitudinal components of unemployment and economic growth have a significant impact on feelings of *economic* threat. In times of rising unemployment rates and plummeting growth rates, citizens' anxieties that immigration poses a threat to the national economy gain momentum (supporting Hypothesis 2). These longitudinal effects of economic context are substantial. Spain, for example, experienced an increase in unemployment rate of 12.4 percentage points and a drop in economic growth of 3.8 percentage points between 2005-6 (the 3rd ESS round) and 2010-11 (the 5th ESS round). Model 2E predicts that the combination of these economic shocks increased economic threat perceptions across the whole Spanish population with more than 0.6 points, which implies a considerable increase. It is of crucial importance to reiterate that these parameters refer to longitudinal effects, capturing the impact that national economic conditions at particular time points have on the evolution of threat perceptions within countries. At the same time, no significant cross-sectional relationships between the average country levels of economic context and economic threat are detected. Model 2E explains 7.8% of the individual variation, 42.7% of the variation between country-years and 25.1% of the between-country differences in economic threat. The model is thus quite successful in explaining why a country's level of economic threat is higher at particular time points than in other years. Note that the effect of the dummy for 2010 has become insignificant, indicating that the high levels of economic threat in that particular year are indeed driven by economic changes.

Whereas economic conditions shape the development of perceived economic threat, no such contextual effects are found for cultural threat. The idea that immigration threatens the nation's cultural life is not only relatively stable over time, but also completely detached from economic changes. Crisis-induced threat perceptions seem to be limited to concerns about economy, and do not generalize to the cultural realm. This finding is in line with

Hypothesis 3. For cultural threat, Model 2C explains 22.7%, 37.3%, and 8.0% of the variance of the dependent variable at the country, country-time, and individual levels respectively.

One of the specific features of the societal growth curve approach is that contextual variables are decomposed into a cross-sectional and a longitudinal component. In order to scrutinize the similarities and differences with the classical approach –that is, including the raw context variables, without decomposition- we additionally estimated models in which only the unemployment rates and GDP growth scores in the year of the survey are included.[iii] We find that the effects of unemployment rate (on economic threat: 0.0351; on cultural threat: 0.0043) and GDP growth (on economic threat: -0.0530; on cultural threat: -0.0031) are very similar to the longitudinal effects found in Models 2E and 2C. This similarity is however particular for the current analysis. It is most likely a result of the fact that the cross-sectional effects per se in our growth models are quite small and insignificant. This may not always be the case, however. In some cases the cross-sectional component of a country score may have an effect on the dependent variable that is stronger or even opposite compared to the effect of the longitudinally varying component. Without decomposition, the estimated context effect is a mixture between the cross-sectional and the longitudinal effect. If both effects are considerable and different, omitting the decomposition can lead to incorrect conclusions.

As an additional robustness check, we re-estimated the effect of economic conditions on economic and cultural threat respectively, controlling for the inflow of foreign immigrants (per capita). [iv] Neither the longitudinal nor the cross-sectional components of foreign immigration are related to either economic or cultural threat perceptions. The most important conclusion from this additional model is that the longitudinal effects of the economic variables unemployment and economic growth on economic threat remain significant, and are thus not driven by a possible connection between migration movements and the severity of the economic crisis.

(Tables 1 and 2 about here)

The fourth hypothesis—namely, that the longitudinal effects of the economic context are stronger among low-educated individuals—is tested in Models 3E and 3C. These models now contain a random slope for education (implying that the educational gradient of threat perceptions can vary across countries and time points) as well as a cross-level interaction effects between education and the time-varying component of the unemployment rate (testing whether the longitudinal effect of unemployment rates differs across educational groups).[v] In the case of economic threat, the longitudinal effects of unemployment are indeed different for various educational groups (see Figure 3). For an individual with an average level of education (12.5 years), represented by the middle line in Figure 3, economic threat perceptions increase by 0.033 point for every percentage point increase in unemployment rate. The negative cross-level interaction parameter (-0.004) indicates that this effect of unemployment becomes weaker as education increases. For individuals who have had 19 years of education (i.e., 6.85 years more than the average, corresponding to the 90th percentile in the dataset), the longitudinal effect of unemployment approaches zero, meaning that unemployment rates are no longer related to threat levels. For respondents with only 7 years of formal education (i.e., 5.85 years less than the average, corresponding to the 10th percentile), the impact of unemployment context is twice as strong as for the average person. This significant cross-level interaction effect shows that contextual labor market processes do not instigate economic threat perceptions uniformly across the whole population. Instead, this sociotropic source of threat seems to affect, in the first place, persons with lower education (i.e., those with a more vulnerable position in the society and the labor market), while the threat perceptions of the highly educated are more immune to the impact of labor market changes.

A similar test (not shown here) revealed that the cross-level interaction between real GDP growth rate and education is insignificant. Hereby, Hypothesis 4 is only partially supported by the data. In the case of cultural threat, none of the cross-level interactions was significant (which is not surprising given that the main effect of the economic context was insignificant for cultural threat).

(Figure 3 about here)

In sum, this analysis reveals that economic threat perceptions have increased after the 2008 crisis (supporting Hypothesis 1), although the increase was only temporary. Furthermore, the changes in threat perceptions are driven by changes in the economic context (supporting Hypothesis 2) and are only observed for the economic component of threat (Hypothesis 3). Finally, the effects of economic conditions are more outspoken of the lower-educated individuals (Hypothesis 4).

6. Conclusions and discussion

The first purpose of this paper is to demonstrate the practical implementation of a statistical model to analyze multi-country repeated cross-sectional datasets. While such datasets are increasingly available, few cross-national studies optimally exploit the richness of datasets containing information on citizens surveyed in various countries and at different time points. The second purpose of this paper is to utilize the model to analyze the effect of the economic crisis on threat due to immigration among Europeans. We do this by providing a novel application of the societal growth curve model introduced by Fairbrother (2014) to test whether the 2008 economic crisis has affected perceptions of ethnic threat among European citizens. More concretely, drawing on the dynamic version of group conflict theory, the current study addressed the following three research questions: (1) In what way has the

prevalence of perceived immigrant threat in European societies evolved in the period before and after the peak of the economic crisis in 2008? (2) Are the observed developments in perceived economic and cultural threat driven by crisis-related changes in economic conditions? (3) Does the crisis affect threat perceptions across the whole population, or are crisis effects instead contingent on socioeconomic status? We answered these questions by analyzing ESS data from 28 different European countries spanning the years 2002 to 2012.

Societal growth curve analysis substantiates in various ways that economic contexts shape the majority group perceptions that immigration poses a threat to the national economy. Between 2008 (just before or during the outbreak of the financial crisis) and 2010 (i.e., when the impact of the crisis on the "real economy" was becoming clear), we detected an increase – albeit short-lived – in economic threat perceptions in 20 European countries. Even more conclusive is the finding that rates of unemployment and economic growth have a longitudinal effect on economic threat perceptions: In times when unemployment rates increase and growth rates plummet, citizens' perceptions that immigrants threaten the economy become more widespread. These effects are purely longitudinal in the sense that they refer to the dynamics within countries (instead of cross-sectional differences between countries), and therefore lend strong support to the dynamic version of group threat theory. The deterioration of economic conditions in Europe indeed instigated fears that immigrants threaten economic prerogatives of the majority group, which might in turn open the door to exclusionary attitudes and discriminatory behavior. The difficult economic situation that Europe has been facing over the past years offers a breeding ground in which economic threat perceptions can easily take root. Finally, the model demonstrated that the effect of the economic crisis (i.e., increasing unemployment rates) is stronger among individuals with lower educational credentials.

The impact of economic conditions on threat perceptions is substantial, but should not be overstated and qualified in several respects. First of all, despite the fact that our analysis covered a period of unprecedented economic instability, changes in threat perceptions remain relatively limited. Differences between countries or citizens are markedly more outspoken than longitudinal variation. A severe economic shock (comparable to what a country like Spain experienced) produces an effect similar in size to the effect of social class (blue-collar workers vs. higher service class) or political orientation (left vs. right), but does not exceed the joint impact of individual-level predictors. Second, our results suggest that the economic crisis had an instantaneous effect rather than a long-lasting one. Threat perceptions did increase in the aftermath of the 2008 outbreak of the crisis, but had fallen back to pre-crisis levels by 2012. As soon as the labor market recovers and economic production takes off again, economic threat perceptions dissipate. Third, the impact of the economic crisis appears to be restricted to economic threat. Feelings of cultural threat are found to be relatively stable over time and to be completely detached from economic dynamics. At least within our window of observation, crisis-induced threat perceptions do not generalize to the idea that immigrants pose a threat to cultural life.

In sum, societal growth curve models offer promising opportunities to investigate the drivers and timing of attitude change. Further research could take this argument and method even further, for example by investigating shorter time spans, and linking public opinion to monthly instead of yearly context data. Our study shows that the societal growth curve models offer opportunities to analyze cross-national repeated cross-sections. Most importantly, by distinguishing between cross-sectional and longitudinal context effects, this approach successfully avoids the problem of weak internal validity that one faces when analyzing single-shot cross-sectional data.

References

Andreß, H. J., Golsch, K., & Schmidt-Catran, A.W. (2013). *Applied panel data analysis for economic and social surveys*. New York: Springer.

Billiet, J., Meuleman, B., & De Witte, H. (2014). The Relationship between Ethnic Threat and Economic Insecurity in Times of Economic Crisis: Analysis of European Social Survey Data. *Migration Studies*, *2*(2), 135-61.

Blalock, H.M. (1967). *Toward a Theory of Minority-Group Relations*. New York: John Wiley and Sons.

Blumer, H. (1958). Race Prejudice as a Sense of Group Relation. *Pacific Sociological Review*, *1*, 3–7.

Campbell, D.T., & Stanley, J.C. (1966). *Experimental and Experimental Quasi-Experimental Design for Research.* Boston: Houghton Mifflin Company.

Ceobanu, A.M., & Escandell, X. (2010). Comparative Analyses of Public Attitudes toward Immigrants and Immigration Using Multinational Survey Data: A Review of Theories and Research. *Annual Review of Sociology*, *36*, 309-28.

Coenders, M., & Scheepers, P. (1998). Support for Ethnic Discrimination in the Netherlands 1979–1993: Effects of Period, Cohort and Individual Characteristics. *European Sociological Review*, *14*(4), 405–22.

Coenders, M., & Scheepers, P. (2008). Changes in Resistance to the Social Integration of Foreigners in Germany 1980-2000: Individual and Contextual Determinants. *Journal of Ethnic and Migration Studies*, *34*, 1-26.

Coenders, M., Lubbers, M., Scheepers, P., & Verkuyten, M. (2008). More than Two Decades of Changing Ethnic Attitudes in the Netherlands. *Journal of Social Issues*, *64*(2), 269-85.

Davidov, E., Meuleman, B., Cieciuch, J., Schmidt, P., & Billiet, J. (2014). Measurement Equivalence in Cross-National Research. *Annual Review of Sociology*, *40*, 55-75.

Fairbrother, M. (2014). Two Multilevel Modeling Techniques for Analyzing Comparative Longitudinal Survey Datasets. *Political Science Research and Methods*, *2*(1), 119-40.

Gorodzeisky, A., & Semyonov, M. (2016). Not Only Competitive Threat But Also Racial Prejudice: Sources of Anti-Immigrant Attitudes in European Societies. *International Journal of Public Opinion Research*, *28*(3), 331-354. doi: 10.1093/ijpor/edv024

Hainmueller, J. & Hopkins, D.J. (2014). Public Attitudes Toward Immigration. *Annual Review of Political Science*, *17*, 225-49.

Harell, A., Soroka, S., Iyengar, S., & Valentino, N. (2012). The Impact of Economic and Cultural Cues on Support for Immigration in Canada and the United States. *Canadian Journal of Political Science*, *45*(3), 499-530.

Hercowitz-Amir, A., Raijman, R., & Davidov, E. (2017). Host or hostile? Attitudes towards asylum seekers in Israel and in Denmark. *International Journal of Comparative Sociology,* online first. DOI: 10.1177/*0020715217722039*

Hopkins, D. J. (2010). Politicized places: Explaining where and when immigrants provoke local opposition. *American political science review, 104*(1), 40-60.

Kuntz, A., Davidov, E., & Semyonov, M. (2017). The Dynamic Relations between Economic Conditions and Anti-Immigrant Sentiment: A Natural Experiment in Times of the European Economic Crisis. *International Journal of Comparative Sociology.* DOI: 10.1177/0020715217690434

Lahav, G. (2004). *Immigration and Politics in the New Europe: Reinventing Borders.* Cambridge: Cambridge University Press.

Lucassen, G., & Lubbers, M. (2012). Who Fears What? Explaining Far-Right-Wing Preference in Europe by Distinguishing Perceived Cultural and Economic Threats. *Comparative Political Studies*, *45*(5), 547-75.

McLaren, L., Boomgaarden, H., & Vliegenthart, R. (2017). News Coverage and Public Concern About Immigration in Britain. *International Journal of Public Opinion Research.* doi: 10.1093/ijpor/edw033

Meuleman, B., Abts, K., Slootmaeckers, K., & Meeusen, C. (2017). Differentiated threat and the genesis of prejudice. Group-specific antecedents of homonegativity, Islamophobia, anti-Semitism and anti-immigrant attitudes. *Social Problems*.

Meuleman, B., Davidov, E., & Billiet, J. (2009). Changing Attitudes toward Immigration in Europe, 2002-2007: A Dynamic Group Conflict Theory Approach. *Social Science Research*, *38*, 352-65.

Neuhaus, J.M., & Kalbfleisch, J.D. (1998). Between- and Within-Cluster Covariate Effects in the Analysis of Clustered Data. *Biometrics*, *54*(2), 638-45.

Olzak, S. (1992). *Dynamics of Ethnic Competition and Conflict*. Stanford: Stanford University Libraries.

Pichler, F. (2010). Foundations of Anti-immigrant Sentiment: The Variable Nature of Perceived Group Threat Across Changing European Societies, 2002-2006. *International Journal of Comparative Sociology*, *51*(6), 1-25.

Quillian, L. (1995). Prejudice as a Response to Perceived Group Threat: Population Composition and Anti-immigrant and Racial Prejudice in Europe. *American Sociological Review*, *60*, 586–611.

Quillian, L. (1996). Group Threat and Regional Changes in Attitudes toward African Americans. *American Journal of Sociology*, *102*, 816–60.

Sarrasin, O., Green, E. G. T., Fasel, N., & Davidov, E. (2015). Does survey respondents' immigration background affect the measurement and prediction of immigration attitudes? An Illustration in Two Steps. *International Journal of Public Opinion Research, 27(2),* 264-276. DOI: 10.1093/ijpor/edu015

Schafer, J. L., & Graham, J. W. (2002). Missing Data: Our View of the State of the Art. *Psychological Methods,* 7(2), 147–177.

Scheepers, P., Gijsberts, M., & Coenders, M. (2002). Ethnic Exclusionism in European Countries. Public Opposition to Grant Civil Rights to Legal Migrants as a Response to Perceived Ethnic Threat. *European Sociological Review*, *18*, 1-18.

Schlueter, E., & Davidov, E. (2013). Contextual Sources of Perceived Group Threat: Negative Immigration-Related News Reports, Immigrant Group Size and Their Interaction, Spain 1996–2007. *European Sociological Review*, *29*(2), 179-91.

Schlueter, E., Meuleman, B., & Davidov, E. (2013). Immigrant Integration Policies and Perceived Group Threat: A Multilevel Study of 27 Western and Eastern European Countries. *Social Science Research*, *42*(3), 670-82.

Schneider, S.L. (2008). Anti-Immigrant Attitudes in Europe: Outgroup Size and Perceived Ethnic Threat. *European Sociological Review*, *24*(1), 53-67.

Semyonov, M., Raijman, R., & Gorodzeisky, A. (2006). The Rise of Anti- Foreigner Sentiment in European Societies, 1988-2000. *American Sociological Review*, *71*, 426-49.

Shadish, W.R., Cook, T. D., & Campbell, D. T. (2001). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference.* Boston: Houghton Mifflin

Sides, J., & Citrin, J. (2007). European Opinion about Immigration: The Role of Identities, Interests and Information. *British Journal of Political Science*, *37*(3), 477-504.

Sniderman, P., Hagendoorn, L., & Prior, M. (2004). Predisposing Factors and Situational Triggers: Exclusionary Reactions to Immigrant Minorities. *American Political Science Review*, *98*(1), 35-49.

Verbeke, G., & Molenberghs, G. (2000). *Linear mixed models for longitudinal data*. Springer New York.

Wilkes, R., & Corrigall-Brown, C. (2011). Explaining Time Trends in Public Opinion: Attitudes towards Immigration and Immigrants. *International Journal of Comparative Sociology*, *52*(1), 79-99.

Wilkes, R., Guppy, N., & Farris, L. (2008). 'No Thanks, We're Full': Individual Characteristics, National Context, and Changing Attitudes toward Immigration. *International Migration Review*, *42*(2), 302-89.

Figure 1: Development of perceived economic threat in 28 countries (by region) – 2002-2012

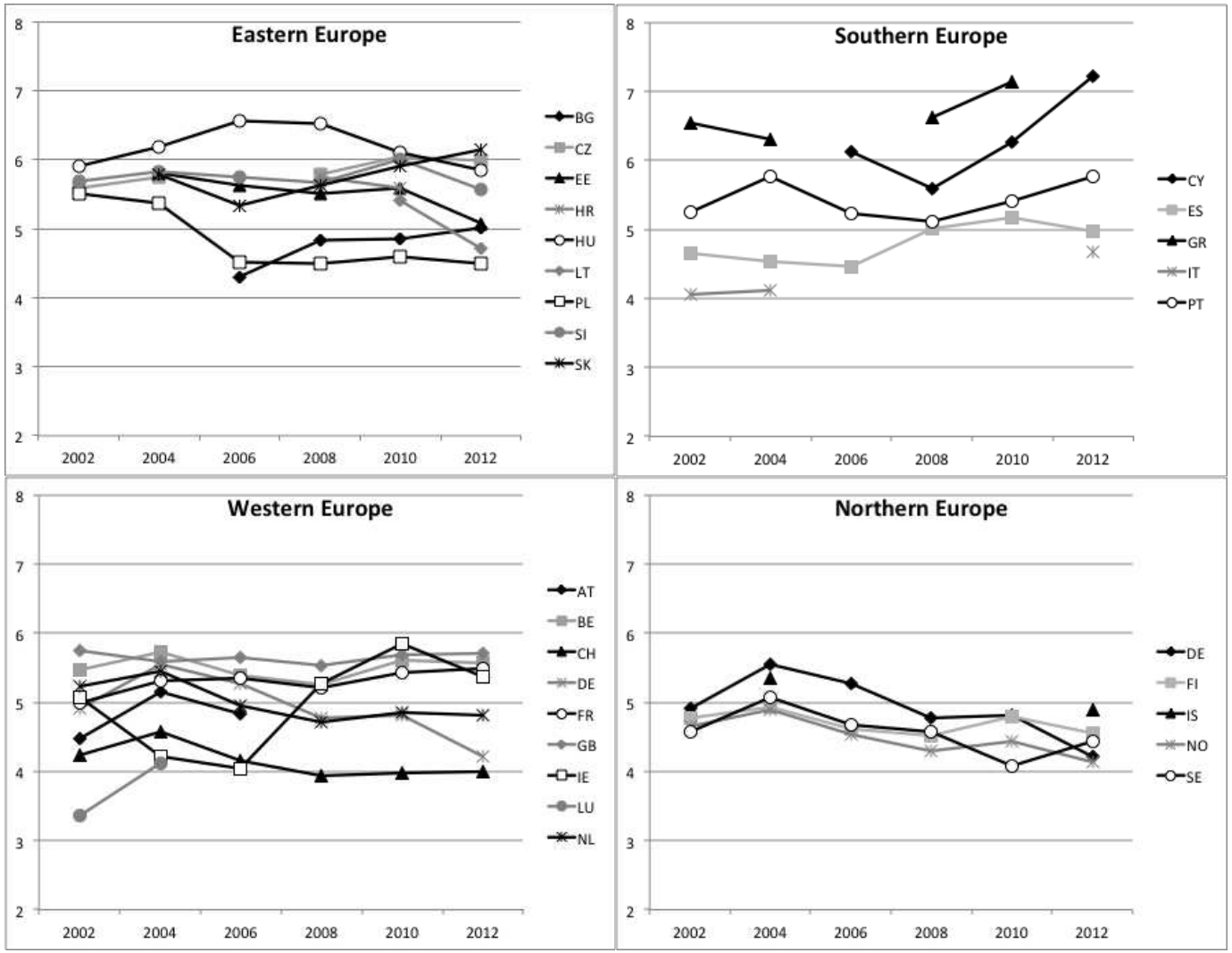


Figure 2: Development of perceived cultural threat in 28 countries (by region) – 2002-2012

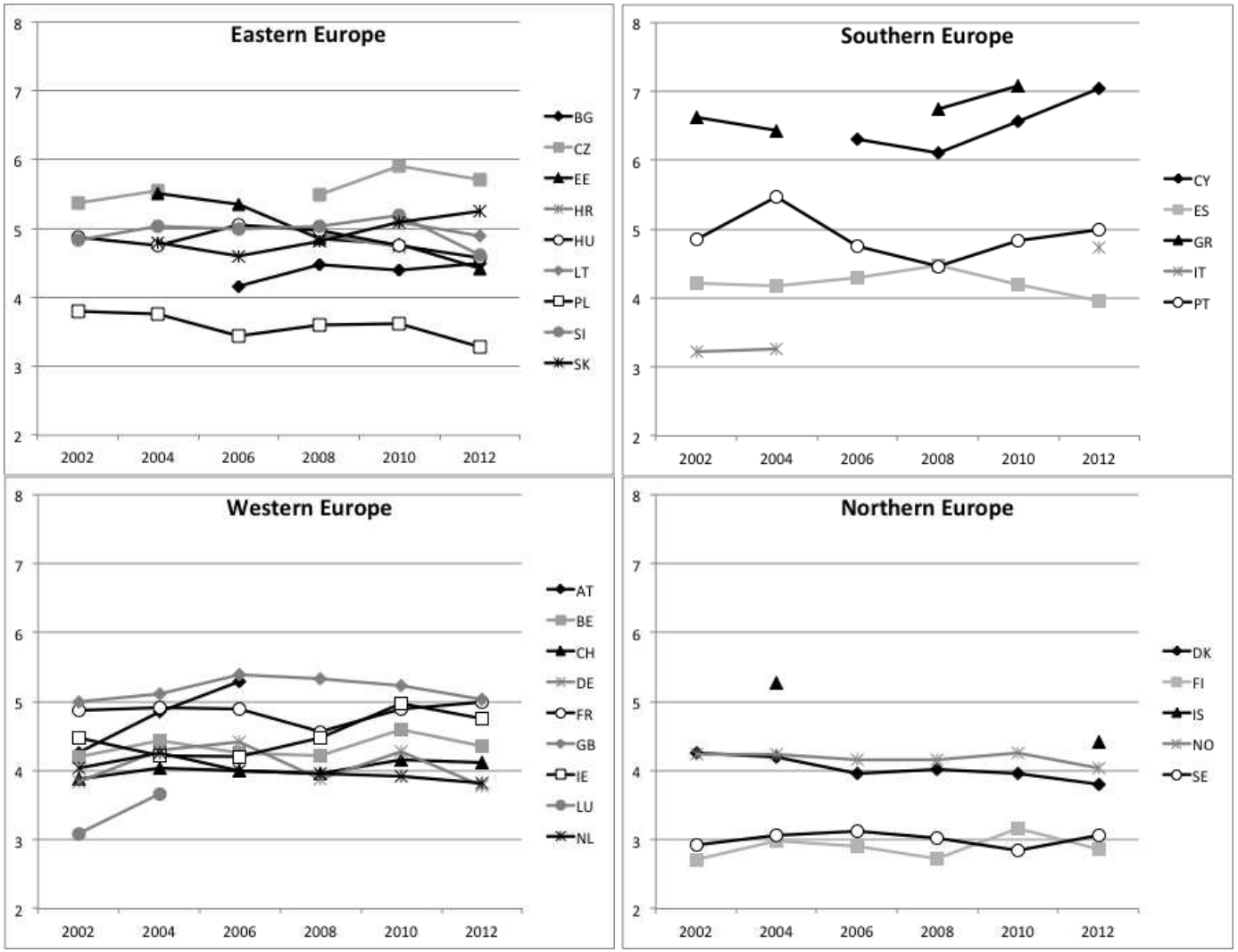
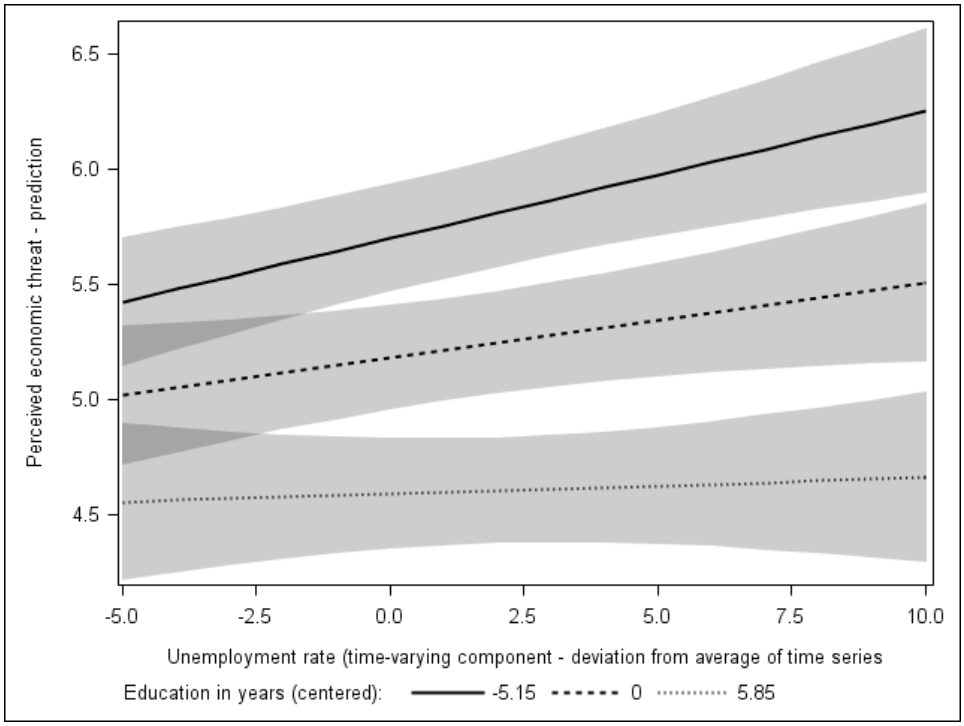


Figure 3: The interaction effect between education and the time-varying component of national unemployment rates



This figure represents predicted levels of economic threat for various values of education (10^{th} percentile in the highest curve, 50^{th} percentile in the middle curve, 90^{th} percentile in the lowest curve) and the time-varying component of the unemployment rate (full range), as well as 95% confidence bands for these predictions (the grey zone around the curves).

Table 1. Societal growth curve models for economic threat

	Model 1E			Model 2E			Model 3E		
Fixed effects - indiv. level	*Par. Est.*	*SE*		*Par. Est.*	*SE*		*Par. Est.*	*SE*	
Intercept	5.155	(0.124)	***	5.195	(0.287)	***	5.650	(0.348)	***
Time	-0.006	(0.025)		-0.031	(0.016)		-0.040	(0.025)	
Dummy: time-point 2008	0.116	(0.055)	*	-0.122	(0.068)		-0.159	(0.087)	
Gender									
male				-0.264	(0.028)	***	-0.261	(0.027)	***
female (ref.cat.)									
Age category									
16-24 years				0.155	(0.056)	**	0.141	(0.055)	*
25-34 years				0.103	(0.031)	***	0.100	(0.030)	***
35-44 years				0.049	(0.021)	*	0.050	(0.020)	*
45-54 years (ref.cat.)									
55-64 years				0.023	(0.033)		0.025	(0.032)	
65-74 years				0.023	(0.058)		0.029	(0.057)	
75 years and over				0.047	(0.064)		0.044	(0.064)	
Education				-0.099	(0.006)	***	-0.101	(0.006)	***
Activity status									
Self-employed				-0.300	(0.044)	***	-0.295	(0.044)	***
Higher service class				-0.632	(0.056)	***	-0.614	(0.054)	***
White collar				-0.393	(0.039)	***	-0.389	(0.038)	***
Blue collar (ref.cat.)									
Unemployed				-0.102	(0.040)	*	-0.103	(0.040)	*
Retired				-0.183	(0.033)	***	-0.187	(0.033)	***
In education				-0.764	(0.045)	***	-0.758	(0.044)	***
Doing housework				-0.235	(0.037)	***	-0.219	(0.034)	***
Disabled				-0.022	(0.049)		-0.032	(0.050)	
Other				-0.405	(0.066)	***	-0.391	(0.065)	***
Subjective income				-0.300	(0.013)	***	-0.307	(0.012)	***
Urbanization				-0.068	(0.008)	***	-0.069	(0.007)	***
Religious involvement				-0.030	(0.009)	***	-0.028	(0.009)	**
Left-right placement									
Left (ref.cat.)									
Centre				0.370	(0.053)	***	0.357	(0.053)	***
Right				0.308	(0.082)	***	0.300	(0.082)	***
Missing				0.600	(0.060)	***	0.593	(0.060)	***
Fixed effects - context variables									
Unemp. rate - Longitudinal				0.035	(0.012)	**	0.033	(0.016)	*
Unemp. - Cross-sectional				0.049	(0.042)		0.010	(0.051)	
GDP growth - Longitudinal				-0.052	(0.015)	***	-0.050	(0.023)	*
GDP growth - Cross-sectional				-0.115	(0.106)		-0.180	(0.134)	
Education x Unemp. rate - Longit.							-0.004	(0.001)	***
Random effects									
Level 3: Var. country intercept	0.366	(0.114)	***	0.326	(0.102)	***	0.311	(0.155)	**
Level 3: Var. slope time	0.010	(0.005)	*	0.003	(0.003)		0.005	(0.004)	
Level 2: Var. country-year intercept	0.083	(0.013)	***	0.065	(0.011)	***	0.065	(0.023)	***
Level 2: Var. slope education							0.000	(0.000)	***
Level 1: Residual variance	5.224	(0.016)	***	4.817	(0.015)	***	4.787	(0.015)	***
Deviance	941487.7			924925.3			924479.9		

*p<.05; **p<.01; ***p<.001; $N_{individuals}$=205,759, $N_{country\text{-}years}$=137, $N_{countries}$=28

Table 2. Societal growth curve models for cultural threat

	Model 1C			Model 2C			Model 3C		
Fixed effects - indiv. level	*Par. Est.*	*SE*		*Par. Est.*	*SE*		*Par. Est.*	*SE*	
Intercept	4.488	(0.160)	***	4.173	(0.336)	***	5.087	(0.388)	***
Time	0.006	(0.021)		0.014	(0.020)		0.002	(0.028)	
Dummy: time-point 2008	0.120	(0.035)	**	0.085	(0.065)		0.050	(0.098)	
Gender									
male				0.057	(0.036)		0.062	(0.036)	
female (ref.cat.)									
Age category									
16-24 years				0.133	(0.061)	*	0.113	(0.061)	
25-34 years				0.002	(0.035)		-0.002	(0.033)	
35-44 years				-0.026	(0.016)		-0.025	(0.015)	
45-54 years (ref.cat.)									
55-64 years				0.066	(0.028)	*	0.069	(0.028)	*
65-74 years				0.146	(0.054)	**	0.159	(0.052)	**
75 years and over				0.234	(0.059)	***	0.238	(0.058)	***
Education				-0.103	(0.008)	***	-0.105	(0.008)	***
Activity status									
Self-employed				-0.228	(0.042)	***	-0.219	(0.043)	***
Higher service class				-0.505	(0.060)	***	-0.473	(0.056)	***
White collar				-0.407	(0.041)	***	-0.400	(0.040)	***
Blue collar (ref.cat.)									
Unemployed				-0.144	(0.051)	**	-0.146	(0.050)	**
Retired				-0.099	(0.036)	**	-0.103	(0.036)	**
In education				-0.722	(0.052)	***	-0.712	(0.051)	***
Doing housework				-0.199	(0.039)	***	-0.176	(0.038)	***
Disabled				0.000	(0.055)		-0.018	(0.053)	
Other				-0.377	(0.077)	***	-0.363	(0.076)	***
Subjective income				-0.230	(0.015)	***	-0.243	(0.015)	***
Urbanization				-0.059	(0.013)	***	-0.064	(0.012)	***
Religious involvement				-0.014	(0.009)		-0.011	(0.009)	
Left-right placement									
Left (ref.cat.)									
Centre				0.492	(0.064)	***	0.468	(0.063)	***
Right				0.564	(0.105)	***	0.548	(0.105)	***
Missing				0.682	(0.079)	***	0.669	(0.078)	***
Fixed effects - context variables									
Unemp. rate - Longitudinal				0.004	(0.012)		-0.012	(0.021)	
Unemp. - Cross-sectional				0.033	(0.049)		-0.051	(0.052)	
GDP growth - Longitudinal				-0.003	(0.012)		-0.011	(0.026)	
GDP growth - Cross-sectional				-0.084	(0.138)		-0.198	(0.138)	
Education x Unemp. rate - Longit.							-0.003	(0.002)	
Random effects									
Level 3: Var. country intercept	0.713	(0.202)	**	0.619	(0.184)	**	0.673	(0.210)	**
Level 3: Var. slope time	0.008	(0.004)	*	0.008	(0.004)	*	0.009	(0.006)	
Level 2: Var. country-year intercept	0.034	(0.006)	***	0.034	(0.006)	***	0.083	(0.019)	***
Level 2: Var. slope education							0.002	(0.000)	***
Level 1: Residual variance	5.344	(0.017)	***	4.917	(0.015)	***	4.885	(0.015)	***
Deviance	946739.0			929758.3			928820.8		

*p<.05; **p<.01; ***p<.001; $N_{individuals}$= 205,905, $N_{country\text{-}years}$=137, $N_{countries}$=28

Appendices

Appendix 1. Sample sizes per country and year

	Round 1 - 2002	Round 2 - 2004	Round 3 - 2006	Round 4 - 2008	Round 5 - 2010	Round 6 - 2012	Total
Austria (AT)	1,973	2,023	2,198	- -	- -	- -	6,194
Belgium (BE)	1,700	1,574	1,611	1,535	1,473	1,565	9,458
Bulgaria (BG)	- -	- -	1,179	1,816	1,978	1,844	6,817
Switzerland (CH)	1,610	1,671	1,402	1,338	1,094	1,079	8,194
Cyprus (CY)	- -	- -	932	1,105	1,000	985	4,022
Czech Republic (CZ)	1,278	2,851	- -	1,937	2,281	1,929	10,276
Germany (DE)	2,648	2,575	2,619	2,459	2,686	2,597	15,584
Denmark (DK)	1,417	1,404	1,404	1,491	1,453	1,518	8,687
Estonia (EE)	- -	1,395	958	1,147	1,383	1,714	6,597
Spain (ES)	1,616	1,489	1,682	2,305	1,660	1,633	10,385
Finland (FI)	1,924	1,977	1,824	2,118	1,797	2,079	11,719
France (FR)	1,314	1,621	1,762	1,861	1,532	1,715	9,805
Great Britain (GB)	1,796	1,662	2,086	2,037	2,070	1,946	11,597
Greece (GR)	2,279	2,135	- -	1,886	2,370	- -	8,670
Croatia (HR)	- -	- -	- -	1,272	1,407	- -	2,679
Hungary (HU)	1,562	1,414	1,406	1,433	1,447	1,874	9,136
Ireland (IE)	1,866	2,111	1,538	1,462	2,146	2,218	11,341
Iceland (IS)	- -	553	- -	- -	- -	691	1,244
Italy (IT)	1,171	1,487	- -	- -	- -	883	3,541
Lithuania (LT)	- -	- -	- -	- -	1,519	1,938	3,457
Luxembourg (LU)	951	1,043	- -	- -	- -	- -	1,994
Netherlands (NL)	2,167	1,690	1,688	1,572	1,657	1,639	10,413
Norway (NO)	1,881	1,607	1,596	1,394	1,351	1,384	9,213
Poland (PL)	2,027	1,672	1,682	1,576	1,707	1,843	10,507
Portugal (PT)	1,412	1,922	1,995	2,199	1,990	2,002	11,520
Sweden (SE)	1,766	1,745	1,690	1,591	1,300	1,585	9,677
Slovenia (SI)	1,349	1,316	1,338	1,161	1,255	1,127	7,546
Slovakia (SK)	- -	1,388	1,558	1,666	1,727	1,719	8,058
Total	35,707	40,325	34,148	38,361	40,283	39,507	228,331

Appendix 2: Descriptive statistics

		Percent	***N***
Gender	female	53.5	122,057
	male	46.5	106,018
	Total	100.0	228,075
Age category	16-24	14.0	31,738
	25-34	14.8	33,624
	35-44	17.2	38,979
	45-54	17.1	38,847
	55-64	16.4	37,206
	65-74	12.6	28,714
	75+	8.0	18,141
	Total	100.0	227,249
Employment status	self-employed	6.5	14,626
	higher service class	6.3	14,185
	white-collar workers	20.9	47,052
	blue-collar workers	14.9	33,576
	unemployed	5.2	11,835
	retired	24.5	55,458
	in education	8.6	19,496
	homemakers	9.1	20,596
	disabled	2.3	5,282
	other	1.3	2,922
	Total	99.6	225,028
Left-right placement	Left	27.7	63,239
	Center	28.82	65,804
	Right	30.92	70,598
	Missing	12.57	28,690

	Mean	**SD**	**Min**	**Max**	***N***
Economic threat perceptions	5.21	2.39	0	10	217917
Cultural threat perceptions	4.50	2.49	0	10	218073
Education (in years)	12.10	4.03	0	30	225821
Subjective income	2.98	0.86	1	4	222897
Urbanization	3.04	1.21	1	5	227676
Religious involvement	4.40	2.55	0.71	10	227353

[i] The core module of the ESS contains a third item measuring immigration-related group threats (ESS item *imwbcnt*). Because the wording of this item is very general and does not refer to specific sources of threat, we do not include it in the analysis.

[ii] The use of single items instead of multi-item batteries makes it difficult to assess the reliability, validity, and cross-cultural comparability of the measurements. To get an indication of the measurement quality, we performed multiple group confirmatory factor analysis (Davidov et al., 2014) on the three threat items included in the ESS across our 137 country-year combinations. Partial measurement equivalence could be established for all countries but Ireland (the output may be provided by the first author upon request). As a result, the data allow us to conduct meaningful comparisons across all countries and time points. To rule out that the outlier Ireland biases our conclusions, we re-estimated all our models excluding the Irish data as a robustness check, but the effects of the economic context remained unchanged.

[iii] We would like to thank an anonymous reviewer for this suggestion. The full results are not shown here, but can be obtained from the first author.

[iv] The full results not shown here, but can be obtained from the first author. This control variable was only included in this stage of the modeling process because the migration flow statistics contain several missing values and lead to the exclusion of the following country-years: FR 2002; FR 2004; GR 2002; GR 2004; IS 2004; PT 2002; PT 2004; PT 2006).

[v] We test the cross-level interaction for education rather than for employment status, because the latter variable is categorical which makes the estimation and interpretation of the interaction more difficult and less insightful. A similar hypothesis could in principle be tested for subjective income. However, including multiple interactions of connected variables at the same time makes the results less insightful.